

## **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

What is claimed is: I claim as my invention is:

**Claim 1** (currently amended): ~~(Claim Number 1) A vehicle with just two wheels parallel to each other, in which the axle is hollow to act as a cylindrical shell, with some extensions and fenders linked to it, to carry the payload and the energy source; and where the centre of gravity of the vehicle is always below the geometrical centre of the single axle, in the direct of the ground surface.~~

An electric motor vehicle for travelling on roads with no more than 20 degrees incline, comprising:

a pair of matching annular wheels vertically positioned side by side at a distance with respective axes of said pair of matching annular wheels proximate and angularly intersecting; the inner bore diameter of said pair of matching annular wheels more than 4/5<sup>th</sup> of the outermost diameter of said annular wheels; said distance met with, and said wheels rotatably positioned and urged by

a semi-rigid structure spanning said distance between said matching annular wheels and flexibly extending radially from said matching annular wheels by more than a third of a meter beyond the radial boundaries of said matching annular wheels, on the front and rear of said electric motor vehicle;

at least a pair of identical, friction-providing, resilient and replaceable O rings with any cross section and of nominal diameter equaling said inner bore diameter of said pair of matching annular wheels, for each of said pair of matching annular wheels;

at least a pair of parallel grooves, spaced axially apart, running toroidally along the cylindrical inner surface of each of said pair of matching annular wheels to provide frictional seating to said pair of O rings;

a respective plurality of brush-less dc motors with rotors described by identical circular truncated bicones with sliced away vertexes replaced by opposing dual axial stator openings wherefrom projecting said respective plurality of cylindrical stator spindles fixed on both said axial sides with sufficient clearance to the radial walls of

a pair of toroidally formed channels respectively positioned diametrically within said inner bore diameter of said pair of matching annular wheels with a functional radial clearance, forming the boundaries to a pair of cylindrical axial formations to rotatably position said pair of matching annular wheels;

a pair of two parallel closed directrix strips of said respective plurality, one on either side of the common circular base directrix of said truncated bicone describing each of said rotors, in rolling contact with two adjoining inner side of each said pair of O rings, always limiting the axial movement of each of said pair of matching annular wheel to a minimum, whereas permitting angular movement of each of said pair of matching annular wheel, and, depending upon electrical conditions of said plurality of brush-less dc motors, also urging or impeding said angular movement;  
said pair of toroidally formed channels each respectively gripped cylindrically on their inner cylindrical surfaces by one of a pair of pneumatically pressurized toroidal cushions with cross sections internally defined by equivalence to a rectangle with rounded comers, providing flexibility to said semi-rigid structure;  
said pair of pneumatically pressurized toroidal cushions with said cross sections respectively gripping externally a pair of hollow cylindrical members with both ends flanged and each of said flanged ends joined to either side, on matching locations, of said semi-rigid structure extending axially and radially to rotatably position said pair of matching annular wheels;  
a revolvable or foldable seating means for one or two passengers to sit side by side or in tandem, facing at will the front or rear side of said electric motor vehicle;  
a set of electrical energy production, storage and control means placed beneath or adjacent to said seating means, positioned in the bottom-side half of said semi-rigid structure;  
the center of gravity of said semi-rigid structure with said pair of matching annular wheels rotatably positioned below the axes of said dual annular wheels irrespective of occupation of said seating means;  
one of a pair of full or partial cover means respectively hinged appropriately to each of said pair of hollow cylindrical members with both ends flanged, as not to obstruct in any way the rotatability of said pair of matching annular wheels, for respective near-circular dual openings through said pair of hollow cylindrical members with both ends flanged; and  
said rotors all essentially identical circular truncated bicones having directrixes with evenly attached small geometrical shapes.

Claim 2 (currently amended): ~~(Dependent Claim Number 1) A direct-drive annular electric motor is integrated with or mounted on the rim of the hollow axle and the hub of the wheel of the vehicle defined in claim number 1.~~  
A full or partial cover means in accordance with claim 1, wherein sliding or folding means fully or selectively cover a ventilator window with a sheet of any degree of transmittance.

Claim 3 (currently amended): ~~(Dependent Claim Number 2) The two circular ends of the mainly cylindrical hollow axle serve as two openings to allow selectable entry to passengers and/or for air and light with the angular movement of the wheels not restricting these passages in any way.~~

An electric motor vehicle in accordance with claim 1, wherein said respective plurality of stator spindles coaxially carry the electrical conductors to the electromagnetic circuitry inside said respective plurality of brush-less dc motors.

Claim 4 (currently amended): ~~(Dependent Claim Number 3) The energy storage unit of the vehicle defined in claim number 1 rests on that inside surface of the hollow shell which remains closest to the ground, to lower the centre of gravity of the vehicle defined in claim number 1, in order to facilitate the incorporation of the design scheme defined in claim number 1.~~

An electric motor vehicle in accordance with claim 1, wherein said identical rotors of said respective plurality of brush-less dc motors are made of either glass-filled nylon or a thermosetting material.

Claim 5 (currently amended): ~~(Dependent Claim Number 4) In a vehicle having definitions of as described in claim number 1, the facility to sit inside a single-seater version of the vehicle, facing either the conventional front or the rear end and drive the vehicle using a wired or chordless joystick controller is there, as there are no mechanical linkages for driving the vehicle.~~

An electric motor vehicle in accordance with claim 1, wherein said identical rotors of said respective plurality of brush-less dc motors are made of either stainless steel or an aluminum alloy.

Claim 6 (currently amended): ~~What more I claim as my invention is: (Claim number 2) A vehicle in which the circumference of the axle is more than half of the maximum outer circumference of the tyre on the wheel mounted on the axle as proportioned herein.~~

An electric motor vehicle in accordance with claim 1, wherein, with said pair of pneumatically pressurized toroidal cushions with cross sections defined by equivalence to a near-circular shape, said pair of toroidally formed channels and said pair of hollow cylindrical members with both ends flanged have respective grip-matching contours on respective sides gripped respectively by said pair of pneumatically pressurized toroidal cushions with cross sections defined by equivalence to a near-circular shape.

Claim 7 (new): An electric motor vehicular arrangement to function as a vehicle only in conjunction with at least one trailer, on effectively level planes having no more than 10 degrees gradient, comprising:

- a pair of matching annular wheels vertically positioned side by side at a distance with respective axes of said wheels proximate and angularly intersecting; the inner bore diameter of said pair of matching annular wheels more than  $4/5^{\text{th}}$  of the outermost diameter of said pair of matching annular wheels; said distance met with, and said wheels rotatably positioned and urged by
- a semi-rigid structure spanning said distance between said matching annular wheels and flexibly extending radially from said matching annular wheels by more than a third of a meter beyond the radial boundaries of said matching annular wheels, on the front and rear of said electric motor vehicular arrangement;
- at least a pair of identical friction-providing, resilient and replaceable O rings with any cross section and of

nominal diameter equaling said inner bore diameter of said pair of matching annular wheels, for each of said pair of matching annular wheels;

at least a pair of parallel grooves, spaced axially apart, running toroidally along the cylindrical inner surface to provide frictional seating to said pair of O rings for each of said pair of matching annular wheels;

a respective plurality of brush-less dc motors with rotors described by identical circular truncated bicones with sliced away vertexes replaced by opposing dual axial stator openings wherefrom projecting said respective plurality of cylindrical stator spindles fixed on both said axial sides with sufficient clearance to the radial walls of

a pair of toroidally formed channels respectively positioned diametrically within said inner bore diameter of said pair of matching annular wheels with a functional cylindrical clearance, forming the boundaries to a pair of cylindrical axial formations to rotatably position said pair of matching annular wheels;

a pair of two parallel closed directrix strips of said respective plurality, one on either side of the common circular base directrix of said truncated bicone describing each of said rotors, in rolling contact with two adjoining inner side of each said pair of O rings, always limiting the axial movement of each of said pair of matching annular wheel to a minimum, whereas permitting angular movement of each of said pair of matching annular wheel, and, depending upon electrical conditions of said plurality of brush-less dc motors, also urging or impeding said angular movement;

said pair of toroidally formed channels each respectively gripped cylindrically on their inner cylindrical surfaces by one of a pair of pneumatically pressurized toroidal cushions with cross sections internally defined by equivalence to a rectangle with rounded corners, providing flexibility to said semi-rigid structure;

said pair of pneumatically pressurized toroidal cushions with said cross sections respectively gripping externally a pair of hollow cylindrical members with both ends flanged and each of said flanged ends joined to either side, on matching locations, of said semi-rigid structure extending axially and radially to rotatably position said pair of matching annular wheels;

a revolvable or foldable seating means for one passenger to sit facing at will the front or rear side of said electric motor vehicular arrangement;

a pair of hooks or hitches on said front and rear of said semi-rigid structure to engage trailer elements for traction by said electric motor vehicular arrangement;

a set of electrical energy production, storage and control means placed beneath or adjacent to said seating means, positioned in the bottom-side half of said semi-rigid structure;

the center of gravity of said semi-rigid structure, with said pair of matching annular wheels rotatably positioned, generally in the vicinity of the said axes of said dual annular wheels irrespective of occupation of said seating means; and

said rotors all essentially identical circular truncated bicones having directrices with evenly attached small

geometrical shapes.

**Claim 8 (new):** An electric motor vehicular arrangement in accordance with claim 7, wherein respective near-circular dual openings, through said pair of hollow, cylindrical members with both ends flanged, have full or partial cover means hinged appropriately to each of said pair of hollow, cylindrical, both-ends-flanged members, as not to obstruct in any way the rotatability of said dual annular wheels.

**Claim 9 (new):** A full or partial cover means in accordance with claim 8, wherein sliding means fully or selectively cover a ventilator window with a sheet of any degree of transmittance.

**Claim 10 (new):** An electric motor vehicular arrangement in accordance with claim 7, wherein said respective plurality of stator spindles coaxially carry the electrical conductors to the electromagnetic circuitry inside said respective plurality of brush-less dc motors.

**Claim 11 (new):** An electric motor vehicular arrangement in accordance with claim 7, wherein said identical rotors of said respective plurality of brush-less dc motors are made of either glass-filled nylon or a thermosetting material.

**Claim 12 (new):** An electric motor vehicular arrangement in accordance with claim 7, wherein said identical rotors of said respective plurality of brush-less dc motors are made of either stainless steel or an aluminum alloy.

**Claim 13 (new):** An electric motor vehicular arrangement in accordance with claim 7, wherein, with said pair of pneumatically pressurized toroidal cushions with cross sections defined by equivalence to a near-circular shape, said pair of toroidally formed channels and said pair of hollow, cylindrical members with both ends flanged have respective grip-matching contours on respective sides as gripped by said pair of pneumatically pressurized toroidal cushions with cross sections defined by equivalence to a near-circular shape.

**Claim 14 (new):** A vehicle, comprising:

a plurality of different or identical wheels positioned symmetrically or asymmetrically in tandem on both the sides of the central longitudinal axis running along the direction of the general rectilinear travel by said vehicle on an evenly surfaced plane in the absence of any steering, wherein each of said wheels is vertically positioned with respective axes of said wheels generally perpendicularly intersected by said central longitudinal imaginary axis in the plan view of said vehicle and said plurality of different or identical wheels is collectively rotatably positioned and urged by,

a chassis spanning distances between all said plurality of different or identical wheels and extending beyond the radial boundaries of said plurality of different or identical wheels, on the front, rear and top of said vehicle;

and

each wheel of said plurality of different or identical wheels, comprising

a tire of continuous annular construction, made of any elastomeric composite material and/or metal,

forming each of the outer peripheries of a maximum of two said wheels in the possible positional condition of the respective axes of said wheels generally perpendicularly bisecting said central longitudinal imaginary axis in the plan view of said vehicle;

- a non-pneumatic tire forming the outer periphery of each said wheel, in the positional condition where the axis of each said wheels generally perpendicularly intersects but does not bisect said central longitudinal imaginary axis, and of discontinuous toroidal construction consisting of a multitude of identical, generally right circular cylindrical rollers; said rollers made of any elastomeric composite material and/or metal or industrial plastic, with central hubs, rotatably held at said respective hubs by the same multitude of axles unitedly forming a regular polygon placed circumferentially and fixed by the same multitude of uniformly interspersed radial brackets fixed basally to, axially along and around the outer circumference of the rim of each said wheel; wherein

said multitude of identical, generally right circular cylindrical rollers are each rotatable from respective said central hub around a respective minor axis formed by the respective axle held along both the circular sides of each said roller by two of said radial brackets, each said minor axis always perpendicular to the axis of rotation of each said wheel;  
each said roller from said multitude of identical, generally right circular cylindrical rollers, comprises

- (a) said central hub made of an industrial plastic and/or metal together with bearing means,
- (b) magnetic or electromagnetic means radially disposed with angular uniformity about said central hub, and
- (c) a hard or resilient crust radially disposed about said magnetic or electromagnetic means, said crust outwardly presenting a uniform, generally cylindrical surface, and said crust made of either any elastomeric composite, an industrial plastic, or metal;

at least one magnetic or electromagnetic means lengthwise in the form of less than half a length of one revolution of a helix of any pitch toroidally wound externally around said non-pneumatic tire of discontinuous toroidal construction, the inside helical surface of said magnetic or electromagnetic means having both the magnetic poles positioned parallelly lengthwise along said means, and the inside diameter of said helix slightly greater than the diameter of each said roller to allow free rotatability of each said wheel, with said magnetic or electromagnetic means lengthwise in the form of less than half a length of one revolution of a helix attached to said chassis to effect fully uniform functional clearance between inside helical surface profile of said magnetic or electromagnetic means lengthwise in the form of less than half a length of one revolution of a helix and said non-pneumatic tire of discontinuous toroidal construction; means arranged externally of each said wheel with non-pneumatic tire of discontinuous toroidal construction,

placed near the ground contact of said non-pneumatic tire of discontinuous toroidal construction below either side of said semi-circular base rim, to electromagnetically influence said magnetic or electromagnetic means in each said roller to either exert either a stalling force or a torque on each said roller in ground contact and each said roller approaching ground contact to respectively effect non-rotation or bidirectional rotation/rotations around said minor axis of each said roller in ground contact and each said roller approaching ground contact, or to mechanically move close to varyingly approach or grip each said roller in ground contact to apply respective degrees of electromagnetic driving, or electromagnetic and mechanical braking both to said bidirectional rotation/rotations of each said roller and each said wheel, and electromagnetic and/or mechanical braking to the rotatability of each said wheel;

magnetic or electromagnetic sensor means arranged externally of each said wheel with non-pneumatic tire of discontinuous toroidal construction, placed near the ground contact of said non-pneumatic tire of discontinuous toroidal construction and below either side of said rim, to magnetically or electromagnetically sense the angular movement of said magnetic or electromagnetic means in each said roller with bidirectional rotation/rotations as each said roller leaves ground contact; and

magnetic or electromagnetic sensor means arranged externally of each said wheel with non-pneumatic tire of discontinuous toroidal construction, placed away from the ground contact of said non-pneumatic tire of discontinuous toroidal construction, to magnetically or electromagnetically sense both the angular movement of said magnetic or electromagnetic means in each said roller with bidirectional rotation/rotations after each said roller leaves ground contact, and the rotational movements of said wheel.

**Claim 15 (new):** A vehicle in accordance with claim 14, wherein said each wheel is essentially annular with inner bore diameter more than half of outermost diameter of said wheel, comprising:

at least a pair of identical, friction-providing, resilient and replaceable O rings with any cross section and of nominal diameter equaling said inner bore diameter of said each wheel;

at least a pair of parallel grooves, spaced axially apart, running toroidally along on the cylindrical inner surface to provide frictional seating to said pair of O rings for said each wheel;

a plurality of brush-less dc motors with rotors described by identical circular truncated bicones with sliced away vertexes replaced by opposing dual axial stator openings wherefrom projecting said plurality of cylindrical stator spindles fixed on both said axial sides with sufficient clearance to the radial walls of

a pair of toroidally formed channels positioned diametrically within said inner bore diameter of said wheel with a functional radial clearance, forming the boundaries to a cylindrical axial formation to rotatably position said each wheel;

a pair of two parallel closed directrix strips of said plurality, one on either side of the common circular base directrix of said truncated bicone describing each of said rotors, in rolling contact with two adjoining inner

sides of said pair of O rings, always limiting the axial movement of said each wheel to a minimum, whereas permitting angular movement of said each wheel, and, depending upon electrical conditions of said plurality of brush-less dc motors, also urging or impeding said angular movement;

said toroidally formed channel gripped cylindrically on inner cylindrical surface by a pneumatically pressurized toroidal cushion with cross section internally defined by equivalence to a rectangle with rounded corners, providing flexibility to said chassis; and said pneumatically pressurized toroidal cushion with said cross section externally gripping a hollow cylindrical member with both ends flanged and one each of said flanged ends joined to a vertical side of said chassis, to rotatably position said each wheel; and

said rotors all essentially identical circular truncated bicones having directrices with evenly attached small geometrical shapes.

**Claim 16 (new):** A vehicle in accordance with claim 14, comprising:

seating means for a passenger or a plurality of passengers to sit side by side and/or in tandem facing at will the front or rear side of said vehicle;

a set of electrical energy production, storage and control means; and

the center of gravity of said chassis with said plurality of different or identical wheels positioned close to the bottom of said vehicle to reduce chances of said vehicle overturning while negotiating bends, without any regard collectively to said respective axes of said plurality of wheels.

**Claim 17 (new):** A vehicle in accordance with claim 15, wherein the near-circular opening through said hollow, cylindrical member with both ends flanged has full or partial cover means hinged appropriately to said hollow cylindrical member with both ends flanged, as not to obstruct in any way the rotatability of said annular wheel.

**Claim 18 (new):** A full or partial cover means in accordance with claim 17, wherein sliding means fully or selectively cover a ventilator window with a sheet of any degree of transmittance.

**Claim 19 (new):** A vehicle in accordance with claim 15, wherein said plurality of stator spindles coaxially carry the electrical conductors to the electromagnetic circuitry inside said plurality of brush-less dc motors.

**Claim 20 (new):** A vehicle in accordance with claim 15, wherein with said pneumatically pressurized toroidal cushion with cross section defined by equivalence to a near-circular shape, said toroidally formed channel and said hollow cylindrical member with both ends flanged have respective grip-matching contours on said sides as gripped by said pneumatically pressurized toroidal cushion with cross section defined by equivalence to a near-circular shape.